

CLAIMS

What is claimed is:

1. A processing machine, comprising:
 - a spindle with a clamping device for holding a tool,
 - a spindle motor for rotating the spindle,
 - a converter unit supplying power to the spindle motor, said converter unit including gate-turnoff power semiconductors,
 - at least one oscillation sensor located proximate to the spindle,
 - a balancing device comprising at least one actuator for compensating an imbalance in the spindle, and
 - a control device with a processor executing a balancing program implemented in software and integrated in the control device, said control device receiving imbalance signals from the at least one oscillation sensor and computing first control signals for the gate-turnoff power semiconductors of the converter unit from a defined relationship between a predetermined desirable rotation speed and a measured or computed actual rotation speed, said control device further computing second control signals for actuating the at least one actuator to compensate the imbalance of the tool.
2. The processing machine of claim 1, wherein the at least one oscillation sensor is disposed near by the bearings of the spindle.

3. The processing machine of claim 1, wherein the balancing device is operatively connected with the tool clamping device.
4. The processing machine of claim 1, wherein the balancing device is operatively connected with the spindle motor.
5. The processing machine of claim 1, wherein the oscillation sensor comprises an acceleration sensor.
6. The processing machine of claim 1, wherein the spindle motor includes a permanent excited synchronous machine.
7. The processing machine of claim 1, wherein the balancing device includes or is operatively connected with an actuator.